DR. EMILE CARTAILHAC.

We regret to record the death of Dr. Emile Cartailhac on November 25 at Geneva, where he had just completed a course of lectures delivered at the invitation of the University. Emile Cartailhac was born at Camarès in 1844, and for more than fifty years had been one of the dominant figures in the study of prehistoric archæology in France. His work in archæology began when the discoveries of Boucher de Perthes were still the subject of controversy, and he threw himself with characteristic ardour into the discussion. He settled early at Toulouse, and founded there in 1866 a museum of human palæontology. His success as a lecturer was immediate, and eventually led to his appointment as professor of prehistoric archæology, the only appointment of the kind in France. From 1869 onward he edited the well-known publication, "Matériaux pour servir à l'Histoire primitive et naturelle de l'Homme," with conspicuous ability; but his greatest contribution to prehistoric archæology was his synthetic study of the prehistory of France which appeared in 1889 under the title, "La France préhistorique d'après les sépultures et les monuments." This book, the first of its kind, has gone through numerous editions. Of his other writings, which were numerous, the most important were "Ages préhistoriques de l'Espagne et du Portugal," the volume dealing with the rock paintings of Altamira in the series published under the auspices of the Prince of Monaco, written in conjunction with the Abbé Breuil, and the archæological section of "Les Grottes de Grimaldi."

Mr. Mansel Longworth-Dames, whose death in his seventy-second year is reported, entered the Indian Civil Service in 1868. He served in the Punjab for twenty-eight years, with an interlude in 1879, when he was on duty with the troops in the second Afghan war. While he was stationed in the trans-Indus districts he acquired a good knowledge of the Baluch tribes and of their language; he published a Baluchi grammar and reading-book, which were for many years used by students; an account of the Baluch race, issued by the Royal Asiatic Society; and "The Popular Poetry of the Baluchis," published by the Folklore Society. He made a large collection of Buddhist art, which passed into the hands of the Berlin Museum, and he helped to arrange the Buddhist rooms of the British Museum. He was an active member of the Royal Asiatic Society, of which he was vice-president. He knew Arabic, Persian, and Portuguese well, and this knowledge he utilised in his new translation, with copious annotations, of "The Book of Duarte Barbosa," published last year by the Hakluyt Society. His death leaves a gap in the small circle of oriental scholars.

We regret to report the death of Mr. C. F. T. Hadrill, clerk in the General Library of the British Museum (Natural History). Seized on January 12 with influenza while on his way home from the Museum, he succumbed to its effects within four days, on the evening of January 16. Mr. Hadrill first took service with the Trustees in the Copyright Office at the British Museum, Bloomsbury, in 1888. Thence he was transferred to the General Library at the South Kensington division of the Museum in 1895. Save for the period of his war service (1915 to 1919), he held his position continuously up to the day of his death. Thoroughly interested in his work, in which he took great pride, he was intimately acquainted with the books under his charge, as all who came into contact with him, whether Museum officials, or students, or casual visitors, soon realised; and his services, always most willingly, obligingly, and efficiently rendered, were consequently in perpetual demand. His loss will be felt as a personal one by a large circle of scientific workers, including those connected with the "Zoological Record," for which he was one of the researchers.

Notes.

The Bakerian lecture of the Royal Society will be delivered on March 9 by Prof. T. R. Merton and Mr. S. Barratt on "The Spectrum of Hydrogen."

The fifth Silvanus Thompson memorial lecture of the Röntgen Society will be delivered by Sir Oliver Lodge at the Institution of Electrical Engineers on Tuesday, March 21.

At a meeting of various sections of the welding industry held on January 26 it was resolved that a new society, to be known as the Institution of Welding Engineers, be formed. The society will embrace all systems of welding, and anyone who is interested in welding and allied industries will be eligible for membership. The hon. secretary (*pro tem.*) is Mr. C. Raggett, and the temporary home of the new institution is at 30 Red Lion Square, London, W.C.1.

Information has reached us from Mr. D. H. Cain, 13 Duke Street, St. James's, S.W.1, that an English company, known as Radium Ore Mines, Ltd., is to re-open the Tolgarrick radium mine situated near Truro. According to this announcement, the mine was abandoned at the outbreak of the war, but is already installed with all the plant necessary for immediate resumption of work. Two rich lodes of uranium ore are to be worked, and the intention is to treat the ore on the spot. The development of radium spas in this connection is also foreshadowed.

Two noteworthy prizes for the discovery of a cure for cancer have recently been announced, namely, one by Lord Atholstan of 100,000 dollars, and the other by Sir William Veno of 10,000*l*. Both prizes are limited to students and graduates of recognised universities, and they will be awarded to the first investigator who within the next five years succeeds in discovering a non-surgical effective cure for cancer. The awards will be made on the decision of the Royal Colleges of Physicians and Surgeons in London.

AT the monthly meeting of the Zoological Society of London, held on January 18, the secretary reported that seventy-nine additions had been made to the society's menagerie during the month—thirty by presentation, thirty-nine deposited, and ten by purchase. The most noteworthy addition to the collections is a pair of lions from India, presented by H.M. the King. The number of visitors to the gardens during 1921 was 1,386,745, and the receipts for admission amounted to 46,509*l.* Four hundred and seven new fellows were elected to the society during the year, and while this number is 123 fewer than in the previous year, it is 95 above the average for the last ten years. These figures are eloquent of the popularity of this institution.

A MOVEMENT has been set on foot to erect a fitting memorial to the great sanitarian, William Crawford Gorgas, through whose labours it became possible to complete the construction of the Panama Canal. Inaugurated by Dr. Belisario Porras, the President of the Republic of Panama, the scheme aims at the erection of a hospital and laboratory for tropical and preventive medicine. The Panama Government has provided a site, a building, and modern equipment valued at half a million dollars, as well as the use of the two-million-dollar Santo Tomas Hospital, which is just being completed. It is hoped to increase the initial sum available by another four and a half million dollars by means of contributions from the public and the Governments which have benefited from the work of Gorgas. A provisional board of directors for the United States has been appointed. The laboratories to be built will resemble the Pan-American buildings in Washington, while Dr. R. P. Strong, of the Harvard School of Tropical Medicine, is to be the scientific director of the memorial.

SHORTLY after the retirement of Prof. P. F. Frankland from the Mason chair of physics in the University of Birmingham a fund was opened with the object of providing some permanent memorial of his work in the University. The money subscribed was devoted in the first place to a portrait of Prof. Frankland (painted by Mr. Bernard Munns), which now hangs in the great hall of the University at Edgbaston. The balance of the fund has been applied to the institution of a Frankland medal, which, together with a prize of books, is to be presented annually to the best student in practical chemistry. The medal is of bronze, bearing on the obverse a profile portrait of Prof. Frankland, and on the reverse the arms of the University. A handsome book-plate has also been designed to be placed in the prize-books. The name of this distinguished chemist will thus be kept green in the memory of future generations of students, and the prize will doubtless act as a stimulus to the attainment of excellence in the practical study of chemistry, on the importance of which Prof. Frankland so wisely insisted.

THE Gypsy Lore Society, founded in 1888 by Mr. David MacRitchie to promote the study of the language, history, ethnology, and folk-lore of the gypsy race, continued its useful career until its publications were suspended in 1892. After fifteen years it was revived under the direction of Mr. R. A. Scott Macfie, but its work again ceased owing to the war in 1914. We are glad to learn that the society has now been revived again under the presidency of Mr. W. Ferguson, with Mr. T. W. Thompson as honorary secretary. The address of the honorary treasurer, to whom the subscription of 1*l.* per annum is payable, is 7 Macdonald Road, Friern Barnet, London, N.11. The society in its new form has received the support of several eminent scholars interested in the subject, and many valuable contributions have been promised. The study of the gypsies is to be commended from many points of view and we trust that the society will receive generous support and meet with the success which it deserves.

IN 1821 some residents of New South Wales of a scientific turn of mind founded the Philosophical Society of Australasia, the first scientific society to be formed in Australia. The society did not continue its meetings for long, and while other societies devoted to agriculture, horticulture, botany, etc., were formed, it was not until 1850 that a society for general science known as the Australian Philosophical Society, with Sir Thomas Brisbane as president, came again into existence. Only two members of the original society were also members of the 1850 society, namely, Alexander Berry and Dr. H. G. Douglass, the latter of whom was honorary secretary of both societies. In 1855 the name was changed to the Philosophical Society of New South Wales, and in 1866 this name gave place to that of the Royal Society of New South Wales, which it still bears. To commemorate the centenary of the foundation of the parent society, members of the Royal Society of New South Wales visited Kurnell on December 10 last, where the president and members of the original society had erected a brass tablet in memory of the landing of "James Cook and Joseph Banks."

INFLUENZA in London had very appreciably decreased according to the deaths given in the Registrar-General's return for the week ending January 21; the decrease compared with the preceding week was 108. In the ninety-six great towns of England and Wales the deaths had increased in the corresponding period by 164, but there seems a good prospect that the improvement shown in London will extend to other parts of England. Of the total deaths from influenza in London during the week 56 per cent. occurred between the ages of forty-five and seventy-five. In London there have been with the present attack thirty-one epidemics since 1890, considering a well-established 20 or more deaths per week as epidemic. The only years without an epidemic are 1896 and 1901, and of the thirty epidemics preceding the present, twenty-seven have occurred in March, twenty-four in February, eighteen in April, and seventeen in January. Not one has been existent in September, only one in August, two in July and October, and three in June. The complaint is essentially epidemic in winter and spring, but there seems little indication of it being helped or hindered by spells of heat or cold.

ENGLISH engineers are glad that it is highly probable that the contract for the electrification of the South African Railway between Pietermaritzburg and Glencoe will be given to the Metropolitan-Vickers Co., of Manchester. In the early days of the electrical industry in South Africa German competition was severely felt, but much of the foreign-made plant then purchased has given great trouble to the users, due not only to faulty design, but also to the fact that it got much too hot at full load. English machines were found to be more desirable. The contract will involve the construction of seventy locomotives. The line carries very heavy mineral traffic on its way to the coast in Natal and goes through a hilly district. It is, therefore, very suitable for electric traction, as regenerative braking can be used on the descending grades. In addition to pumping back into the line most of the potential energy lost, it obviates all the wear and tear on wheels and brake-shoes inevitable with steam traction. Each of the locomotives will be equipped with four large electric motors, and the construction of these and the necessary control gear will, unless the unforeseen happens, provide employment for many workpeople in Sheffield and Manchester.

THE thirteenth meeting of the International Geological Congress is to be held in Brussels on August 10–19. Excursions to places of geological interest in Belgium will be held before the congress, on August 1–9, and afterwards from August 21–September 3. An interesting programme of geological discussions on subjects including tectonics, the geology of the Carboniferous system and of petroleum, and the geology of Africa—a subject to which Belgian geologists have contributed greatly. The committee of organisation has decided not to admit ". . . nationals of those countries lately at war, in defiance of Treaty obligations, with Belgium "—a phrase which only an international lawyer could confidently interpret. It might be intended to exclude Germans only, but might admit of considerable extension. The admission of Germans and Austrians to the social functions of the congress might be reasonably regarded as premature, but their complete exclusion from an international scientific congress will be regretted by many British geologists. The president of the organising committee, who will naturally be president of the congress, is M. J. Lebacqz, Director-General of Mines, and president of the Geological Council in Belgium. The secretary is M. Renier, the head of the Geological Survey of Belgium. There will be five excursions before the congress to examine respectively the central and eastern districts, the Tertiary beds, the Devonian, and building materials. There will also be ten local excursions, most of which are for a single day, during the congress. Five excursions after the congress will be devoted to the study of the Cretaceous and Tertiary rocks near Mons, the metamorphic rocks at Bastogne, the Palæozoic tectonics, the Carboniferous limestones, and the Westphalian. These excursions vary from four to twelve days.

THE Secretary of State for Air, Capt. Guest, received a deputation from the council of the Royal Aeronautical Society on January 17 and heard views for safeguarding the applied scientific research of the Air Ministry. Attention was directed to the danger of dealing exclusively with the needs of the moment, particularly by routine methods, and to the fact that present and future economy called for systematic inquiry on scientific principles. The high insurance rates required to cover aviation risks and the loss of the airship R38 are instances which will occur to readers of NATURE as matters needing more than passing attention. The deputation consisted of Col. M. O'Gorman (chairman), Prof. L. Bairstow, Sir Mackenzie Chalmers, Prof. B. M. Jones, and Lt.-Col. A. Ogilvie, and represented the council of the Royal Aeronautical Society, except that Service members felt that their appointments debarred them from expressing an opinion. A marked distinction was made between "applied scientific research" and "*ad hoc* experiments," and it was stated that experience showed that the latter take precedence and tend to the extinction of research on the ground of urgency when both are under a common direction. The cessation of airship research both on the full scale and in the laboratory and the proposal to close the Aerodynamics Department of the National Physical Laboratory (happily not being fully pressed) indicate how serious has been the position in the past year. The deputation suggested that the remedy lay in the appointment of a scientifically trained head of a department specially devoted to applied scientific research. As applied to a new science the difficulties are great, but it is understood that the proposals are receiving the serious and sympathetic consideration of the Secretary of State for Air.

THE report of the "Wireless" Telegraphy Commission which has just been issued is of value, as it represents the reasoned and deliberate judgment of three well-known experts. In his preface Dr. Eccles comments on the "severely technical" nature of the report, but as the terms of reference definitely ask for advice on the preparation of specifications for machinery and apparatus this was unavoidable. The Commission is to be congratulated on the thoroughness with which it has done its work. As in all engineering projects, however, unless the scheme is begun at once further discoveries may make it advisable to alter appreciably the detailed specifications. It recommends that a radio-chain be established, none of the steps being greater than about 2000 miles. The radiotelegraphic energy is to be generated by thermionic valves. The first step is to be from Leafield to Cairo, which the Post Office will shortly operate by means of Poulsen arcs. Then valve stations will be erected at Poona, Singapore, Hong Kong, and in Australia at either Port Darwin or Perth. Valve stations would also connect England and Canada. The stations are to be capable of delivering at least 120 kilowatts to the antenna. They will be larger, therefore, than the Carnarvon station of the Marconi Company. It has been found that there is a considerable loss of energy due to the induced currents in the earth under the antennæ. The Commission therefore advises that efficient earth-screens made of grids of copper wire be used at all the chain stations. It is suggested that the Marconi Company be invited to tender for earth-screens, antenna tuning coils, and thermionic-valve sets. It also suggests that if their tender be not acceptable, suitable plant could be designed by the Commission after the conclusion of the work now being undertaken at Horsea.

THE last annual report from the Field Museum of Natural History at Chicago deals with the highly successful removal of the collections from the building in Jackson Park to a new building in Grant Park. The Section of Plant Reproduction continued to turn out those beautiful models of vegetable structure on which we have commented in previous years. In addition to several fruits and flowers, the reproductions include the green algæ, Œdogonium and Ulothrix, enlarged tip of a frond of the alga, *Bryopsis plumosa*, a cotton plant, and a cycad, *Zamia floridana.* Another reproduction illustrated, but not otherwise mentioned, in this report is a restoration of the New Zealand moa, 13 ft. high. We do not know which species of Dinornis this professes to represent, but it seems to have an abnormal number of cervical vertebræ, a mammalian back, and pantomime legs.

IN "La Cité des Termites" Dr. J. Feytaud gives a very interesting account of the social habits of *Leucotermes lucifugus,* Rossi. The author has had excellent opportunities to study this species of white ant (one of the two species of the family found in Europe) at first hand in the south-west of France, and he has made good use of them. The brochure contains one of the most complete studies of the life and habits of the termites that we have. Much of the information has appeared in scientific journals, but now that the author has brought his studies together into one volume the intricate and elaborate social life that exists amongst termites should become more widely known. A chapter is devoted to the ravages and means of destruction of termites.

SOME interesting anthropological data relating to the Pitcairn Islanders, the descendants of the mutineers of the *Bounty,* are contained in an appendix by Dr. D. Colquhoun, of Dunedin, New Zealand, to a report on a visit paid in June last to Pitcairn Island by Sir Cecil Rodwell, High Commissioner of the Western Pacific (Colonial Reports—Miscellaneous: No. 93). The present inhabitants, who number 174, are the descendants of forty of the islanders who, in 1859, returned to Pitcairn from Norfolk Island, whither the whole population of 190 had migrated in 1856. Dr. Colquhoun describes the islanders as lighter in complexion than pure Maoris, and says many would pass for southern Europeans. The hair is generally dark and straight, although one individual had the frizzy hair, dark skin, and thick lips of a Melanesian type, and two children had fair hair and blue-grey eyes. Generally the eyes are dark brown, rarely bluish-grey. All the islanders are dolichocephalic. No stigmata of the degeneration through in-breeding, which was anticipated from the evidence afforded by Admiral Palliser's visit to the island in 1898, were observed, and the island is singularly free from disease. Copies of the report may be obtained from H.M. Stationery Office, Imperial House, Kingsway, W.C., price 10*d.*

RÉSEAU MONDIALE, 1914, has recently been published by the Meteorological Office of the Air Ministry. The preface to the work is written by Sir Napier Shaw. The present volume completes five years of the publication, 1910 to 1914, which will afford some idea of the value of the compilation of meteorological data for the whole globe which it has been the ambition of meteorologists to achieve for a long time past. Data for 1914 were not obtainable until some time after the war, and information for many of the Siberian stations is still lacking. The number of stations recorded for the present volume is 392. Two stations are chosen for each ten-degree square, and the results are given for each month and for the year. For barometric pressure the mean is shown with the difference from the normal. For temperature the mean maximum and mean minimum values are tabulated with the mean of the maximum and minimum and the difference from the normal, together with the absolute maximum and absolute minimum temperatures experienced. For rainfall the total precipitation is given and the difference from the normal.

THE report of a general discussion on the physics and chemistry of colloids, held jointly by the Faraday Society and the Physical Society of London, has been issued by the Stationery Office at the price of 2*s.* 6*d.* It includes nearly thirty formal papers on colloids, in addition to the discussions arising therefrom. Special attention may be directed to the brilliantly lucid "Survey of the Physics and Chemistry of Colloids," by Prof. Svedberg, of Upsala, with which the proceedings were opened. The essential outlines have been drawn with a clearness and firmness of touch that has never before been equalled, whilst the bibliography at the end of the paper shows where the details required to complete the picture may be found.

THE demand for very penetrating X-rays for purposes of medical therapy has led to the construction of high-tension apparatus capable of giving a continuous output for several hours of current at an alternative spark-gap up to about 18 in. This has caused considerable modifications in the design of both induction coils and interrupterless transformers. A circular on "Deep Therapy Apparatus, Section 2b," issued by Messrs. Newton and Wright, Ltd., gives a description of an induction coil designed for this type of work. The coil really consists of two symmetrical coils mounted side by side, the whole being immersed in oil; this latter avoids breakdowns due to insulation troubles produced by the high-tension discharges in the air in the interior of the coil. A useful feature of the doublecoil design is that it allows the milli-ampere meter to be inserted at the mid-point, which is at zero potential, and hence the instrument can be brought to an ordinary low-tension switchboard.

AN account of the discussion on the future of geometrical optics which took place at the Cambridge meeting of the Optical Society in May last is given in part 5 of the Transactions of the society for the present session. On the whole, the representatives of the manufacturers were in favour of retaining the step-by-step trigonometrical method of tracing rays through the system under design in order to get rid of aberrations rather than changing to the analytical methods, which give the aberrations of the first order in terms of a certain quartic in the magnification and those of the second order in terms of

$$M(1+AM)/(1+BM),$$

where A and B are constants and M is the square of the inclination of the ray to the axis. It was, however, suggested that some attempt should be made by mathematicians to reduce the complexity of the formulæ involved by bringing the subject into line with the wave theory. It was pointed out that the British optical trade must in the next four or five years improve its optical designs if it is to be able in the future to sell its products against the better designed articles offered by manufacturers of other countries.

A LIST of American research chemicals has been issued as No. 23 of the Reprint and Circular Series of the National Research Council, Washington. The list includes biological stains and indicators, and includes a very large number of fine chemicals. The number is larger than that in the corresponding list of British research chemicals, issued by the Association of British Chemical Manufacturers, but the latter is incomplete, and although not dated, was issued some time before the American list. The American list also includes many very simple derivatives, such as acetyl and benzoyl compounds, which swells its bulk. One noticeable feature of the American list is that it includes a large number of rarer inorganic chemicals likely to be required for research purposes, whilst the British list is largely made up of organic chemicals. It is desirable that a new and more complete edition of the latter should be issued as soon as possible, and that requirements in inorganic, as well as organic, chemicals should be kept in mind.

THE provision of a works laboratory is now recognised as an essential part of the organisation of any large engineering firm. The equipment will, of course, depend upon the kind of work carried out by the firm. The laboratory at the Bedford works of Messrs. W. H. Allen and Sons, Ltd., forms the subject of an illustrated article in *Engineering* for January 13, and its equipment may be taken as an excellent example of what is required by a firm manufacturing a wide range of high-grade mechanical engineering products. There is a main mechanical testing-room, a chemical laboratory with balance-room and stores, a recalescence room, a photomicrographic room, dark room, and office. The mechanical testing equipment includes a Brinell hardness machine, a Sankey autographic bending machine, machines for repeated impact testing of the Eden-Foster and Stanton types, an Izod impact machine, a 30-ton Buckton machine with a Ewing extensometer, and a Shore hardness testing machine. The same room contains a number of machine tools for the preparation of specimens. The chemical laboratory has also a very complete equipment; the recalescence furnace is a modification of the one in use in the National Physical Laboratory. It is perhaps unnecessary to add that this laboratory has exercised a very effective control over the quality of the firm's products.

AN introductory address to his lectures at University College on waterways, harbours, and docks was delivered by Dr. Brysson Cunningham on January 24. The great value of the ocean as an international waterway and the facilities it affords for traffic, with far fewer difficulties than in the case of land routes, were emphasised. Before the war railway construction in England had cost something more than 50,000*l.* per mile, including expenses of promotion, while in the United States the cost averaged only about one-fifth of this sum; the outlay for track formation proper was about 5000*l.* or 6000*l.* per mile. In both cases there is, in addition, the expense of maintenance, whereas in a waterway on the high seas there is neither cost of construction nor of upkeep. This is true, though in a lesser degree, of the rivers and inland waterways. Dr. Cunningham also discussed ports, pointing out that few modern ports have kept pace with the requirements of the naval architect in regard to ship design. Rational developments in shipbuilding are impeded by lack of depth of water at the principal ports and in the Suez Canal. The following table shows the actual rate of expansion in the dimensions of vessels in the mercantile marine during the past forty years:—

	Average dimensions of the twenty largest steamships in each of the years mentioned.				
	1881. Feet.	1891. Feet.	1901. Feet.	1911. Feet.	1921. Feet.
Length.. ..	460	507·0	599	703·5	735·0
Breadth ..	45	54·5	65	73·6	82·5
Depth	30	31·0	39	47·7	51·0
Loaded draught	24	27·0	32	32·5	34·0
Tonnage ..	4,900	6,980	14,150	21,600	31,550

Sir John Biles has claimed that it would be economical to construct vessels up to 1000 ft. in length provided it were possible to give them the appropriate draught of 57 ft., but there are very few ports in the world which could receive a vessel of this draught. Forty feet is the extreme limit of draught which is available at the present day for sea-going vessels.

IN the general article on "Agriculture at the British Association" in NATURE of January 5, p. 25, it was stated that "Mr. M. M. Monie gave an account of a photographic survey of soils . . . the method he proposes, while of limited use by itself, should have a useful place in soil-survey work." Mr. Monie writes to say that his remarks were "that a photographic record of topography, soil profiles, and soil types in the field was a most useful section of my soil survey, forming about 10 per cent. of the work." As an illustration of the value of the method, he showed a telephotograph of an area covered by mounds of fluvio-glacial sands and gravels. Mr. Monie also states that the field methods he has worked out for the West of Scotland can easily be applied to give useful results over most areas.

THE reviewer of the translation of Prof. le Blanc's "Text-book of Electrochemistry" in last week's NATURE, p. 101, remarked that though the title-page bore the date 1920, he could find no references later than 1907. It has been pointed out to us, however, that the translation, as stated on the title-page, is of the fourth German edition, and that the author's preface to this edition, dated 1906, is printed in the volume. The translators state in their preface that the work is a translation of this edition, and at the back of the title-page are printed the words "Published March, 1907." It was not suggested by the publishers, therefore, that the work was anything more than the fourth edition; the date on the title-page was merely that of the current reprint.

REFERRING to the notice in NATURE of January 12, p. 59, of the new petrological microscope manufactured by Messrs. R. and J. Beck, the firm wishes it to be known that the left-hand slow-motion milled head is provided with graduations each of which represents 0·01 of a millimetre.

MESSRS. BOWES AND BOWES, Cambridge, have just issued a MS. list of recent books dealing with mathematics on sale by them, and another of works in the German language. Messrs. H. K. Lewis and Co., Ltd., 136 Gower Street, W.C.1, have sent to us a list of the new books and new editions added to their Medical and Scientific Library during October-December. These lists and that of "Recent Scientific and Technical Books" issued with NATURE of January 26 should make it possible for readers to keep abreast of current scientific literature.

MESSRS. CHAPMAN AND HALL, LTD., are about to publish a book by Dr. G. W. C. Kaye entitled "Industrial Applications of X-rays," which aims at presenting in language not too technical the various uses to which the rays can be usefully applied in commercial undertakings. Another book in the announcements list of the same publishers is "Mechanical Testing," by R. G. Batson and J. H. Hyde, 2 vols. Vol. 1, which will deal with the testing of materials, is expected to be published in February, and vol. 2, treating of the testing of apparatus, either in May or June.

Our Astronomical Column.

THE TOTAL SOLAR ECLIPSE OF NEXT SEPTEMBER.—The Greenwich Expedition which is being sent to Christmas Island for this eclipse, consisting of Messrs. H. Spencer Jones and P. J. Melotte (the former being accompanied by his wife), sailed from Liverpool on January 28 in the s.s. *Mentor* (Blue Funnel Line). It is hoped by May to have the instruments ready for observation; the apparatus taken weighed 4 tons, including the 13-in. astrographic equatorial, which will be used for stellar photometry, to connect the magnitude scales of the northern and southern hemispheres, in addition to the eclipse programme, which is simply a repetition of the testing of the Einstein light-shift. The stars are fainter than those of the 1919 eclipse, but the replacement of the cœlostat by an equatorial should bring a great gain in definition.

The *Times* of January 27 makes the welcome announcement that the Commonwealth Government will put a warship at the disposal of the parties visiting Wollal, Western Australia; these include a large party from the Lick Observatory, also parties from Toronto and New Zealand and some Australian astronomers. This will be of great assistance to the parties, but will not remove all their difficulties, as there is no harbour in the neighbourhood, and ships have to anchor some miles out, and land passengers and goods by boats through a surf that is often heavy.

Mr. J. Evershed, director of Kodaikanal Observatory, hopes to observe the eclipse from the Maldive Islands.

THE PLEIADES.—Lick Obs. Bull. No. 333 contains an important study of this cluster by Mr. Robert Trumpler. The stars belonging to it are distinguished from the background stars by their proper motion; Boss's value for the bright stars is 5·4″ per century in position angle 157·9°. A list is given of 246 stars, of magnitudes between 2·8 and 15·2, that are concluded to be members of the cluster; this conclusion is supported in the case of the fainter stars by the fact that the average motion of stars of these magnitudes is much smaller. The conclusion is strengthened by an examination of spectral types; these are found directly for the stars brighter than magnitude 11, and inferred from the colour-index for the fainter ones. On plotting spectral class against magnitude a smooth curve is found, which descends less steeply in the middle portion than at the ends; it is interesting to note that a practically identical curve was reached at Greenwich by Messrs. Davidson and Martin on plotting effective wave-length against spectral type for stars in the Greenwich astrographic zone.

Inferring the absolute magnitudes for each spectral type from stars of known parallax, the parallax 0·008″ is found for the Pleiades. The hypothetical parallax deduced from the binaries in the cluster is 0·010″, while Hertzsprung and Hartmann found 0·014″ from the parallactic motion of the group. It is inferred that the round value of 100 parsecs, or 320 light-years, is close to the true distance. One very interesting fact is that the red and yellow stars in the cluster are dwarfs, the only giants being those of type B and perhaps a few of type A. It will be remembered that on Russell's theory the B type is the latest of the giant stages, so that the cluster would seem to be in its old age. Examination of the binary stars supports Aitken's conclusion that stars of considerable mass are more likely to divide. Another point noted is the deficiency of stars of type F, suggesting that this may be a short-lived stage. The average star density of the whole group is about ten times that in the sun's neighbourhood. That in the centre of the group is still greater. Correcting for the sun's motion, the speed of the group is 9 km./sec.